

Fiber optic solution

Data networks in rolling stock engineering



Areas of application

Our fiber optic cables are an important component in the data networks and passenger information systems used in rolling stock, trolleybuses and rail-related applications, in both infrastructure and high-voltage applications.

They are suitable for connecting fixed-installation components for low-loss and EM-compatible data and signal transmission.

With modular solutions from LEONI customised to your exact requirements, you are perfectly equipped to handle the long-term trend towards device and application networking in any area.

Your advantages

- Excellent data transmission > 10 GB/s
- Cross-linked sheath material LE.X.CO
- High resistance to typical rail service fluids
- Excellent fire prevention profile (tested vs. EN 45545-2)
- Low fire load, halogen-free
- Bend-optimised fibers
- Reduced weight
- Maximum flexibility for easier installation
- Available as a cable or preassembled product

Structure

- Fiber: OM3 multi-mode (other fibers on request)
- Cable: 4 cores with one fiber each (other configurations on request)
- Connector: 4 x SC/PC (other connectors on request)
- Cable sheath: LE.X.CO (LEONI X-linked COMpound)
- Sheath colour: blue



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Fire prevention in rolling stock*

- EN 45545-2, hazard level HL1 – HL3
- Vertical flame spread
Single cable: EN 60332-1-2
Bunched cable: EN 50305
- Smoke density
EN 61034-2
 (>70 % transmission), HL1 – HL3
- Combustion gas toxicity
EN 50305 9.2
 (ITC < 6), HL1 – HL3
- Halogen content
EN 50267-2-1, EN 60684-2
- Combustion gas corrosivity
EN 50267-2-2

Requirements clause (relevant component no.)	Test procedure reference	Parameter and unit	Maximum or minimum	HL1	HL2	HL3
R15 (EL1A)	T09.01 EN 60332-1-2	Uncharred length mm	Minimum	Charred part ≤ 540 Uncharred part > 50	Charred part ≤ 540 Uncharred part > 50	Charred part ≤ 540 Uncharred part > 50
	T09.02 EN 60332-3-24 (for d ≥ 12 mm)	m	Maximum	2.5	2.5	2.5
	T09.03 EN 50305 (for 6 mm < d < 12 mm)	m	Maximum	2.5	2.5	2.5
	T09.04 EN 50305 (for d ≤ 6 mm)	m	Maximum	1.5	1.5	1.5
	T13 EN 61034-2	Transmission %	Minimum	25	50	70
	T15 EN 50305	ITC Dimensionless	Maximum	10	10	6

* Other fire prevention standards on request

Transmission properties/technical data

- Maximum attenuation
850 nm 3.0 dB/km
1300 nm 1.0 dB/km
- Bandwidth (overfilled launch)
850 nm 1500 MHz x km
1300 nm 500 MHz x km
- Effective modal bandwidth-length product
850 nm 2000 MHz x km
- Numerical aperture
0.200 +/- 0.015
- Connector: Attenuation
< 0,2 dB
- Data transmission
10 Gigabit/s with 10GBASE-SR
40 Gigabit/s with 40GBase-SR4
100 Gigabit/s with 100GBase-SR10

Cable sheath properties

- Excellent mechanical material properties (tested vs. EN 50264-1)
- Highly flexible material for simple installation
- Cold flexibility to -25 °C
- Resistant to mineral oils and fuels (tested vs. EN 50264-1 EM 101)
- Resistant to ozone (tested vs. EN 50264-1 EM 101)
- Resistant to acids and bases (tested vs. EN 50264-1 EM 101)
- High resistance to typical rolling stock detergents and lubricants
- Low water absorption, for deployment in areas where high levels of moisture and water from condensation are to be expected
- UV-resistant

Properties of pre-assembled products

- Suitable for typical rail plug connectors
- Waterproof to IP 68 in split hood housing
- Optimised anti-kink protection
- Customised to your needs
- Quality-tested

